



## **Effect of land use and check dams on sediment yield and transport in Shejiagou Catchment (Loess Plateau, China)**

Debasish Pal (1), Honglei Tang (2), Stefano Galelli (1), and Qihua Ran (2)

(1) Pillar of Engineering Systems and Design, Singapore University of Technology and Design, Singapore, (2) Department of Hydraulic Engineering, Zhejiang University, China

The understanding of soil erosion and sediment transport processes is a key step towards the sustainable management of erosion-prone areas. This requires uncovering the interaction between natural and anthropogenic processes—e.g., how land cover, sediment sources, delivery routes and check dams affect the transport of sediments. In this work, we use a spatially distributed model (WaTEM/SEDEM) to study the effect of land use and check dams on soil erosion and sediment yield in Shejiagou Catchment, a 4.72 km<sup>2</sup> area located in the Loess Plateau (China). The model is calibrated and validated using available data on suspended sediments at the catchment outlet, check dam locations, and 1975, 1986 and 2006 land use scenarios. Furthermore, we carry out a sensitivity analysis to study the effect of different parameterizations on WaTEM/SEDEM accuracy. We use the model to identify the critical sources of sediments and to assess the role of check dams in retaining sediments within the catchment. Preliminary results indicate that check dams can control sediment transport significantly. Further investigation is required to study the accumulation of sediments in check dams—a primary cause of dam maintenance costs and failures.